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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/072,963	05/05/1998	ERIC A. WACHTER	PHO-0002-DIV	7144

7590 07/13/2007
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EXAMINER

ROZANSKI, MICHAEL T

ART UNIT	PAPER NUMBER
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3768

MAIL DATE	DELIVERY MODE
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07/13/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/072,963

Applicant(s)

WACHTER ET AL.

Examiner

Michael Rozanski

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26-30,33-36,38 and 40-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26-30,33-36,38 and 40-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 26-30, 33-36, 38, and 40-48 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 26-30, 33-36, 38, and 40-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Denk et al* (5,034,613) in view of *Kolobanov et al* (4,973,848) and *Dixon et al* (US 5,192,980). Note that the Examiner interpreted the means plus function language under the 112 6th paragraph.

Claims 26-30, 33-36, 38, and 40-48: Denk teaches an imaging apparatus or a microscope for imaging a particular volume of plant or animal tissue containing at least one photo-active molecular agent, the apparatus comprising:

a source of collimated light, said light having a frequency effective to penetrate into the tissue, said light being adapted to promote simultaneous two-photon excitation (TPE) of the molecular agent contained within the tissue (see col. 2, lines 33-65; describing the source of collimated light capable of TPE);

focusing apparatus for focusing the collimated light throughout a range of focal lengths extending from a surface of said tissue to a depth substantially beyond said surface said light source and focusing agent, apparatus cooperating to promote TPE of the molecular agent, wherein a focal point or focal plane is adjustable with respect to said tissue (see col. 4, lines 32-60; describing focusing through an objective lens and adjustability of the focus); and

a detector located proximate to the tissue and positioned to detect said light emitted by the molecular agent and which travels a path that does not retrace an optical path of the light incident on the tissue, said detector configured to produce a detected signal characteristic of the particular volume at which the light source has been focused (see col. 2, lines 59-65).

The pulse duration used is about 75MHz and sub-second pulse duration (see col. 6, lines 35-38). While the energy of the pulse is not explicitly stated, given the duration characteristics it would be inherent that they would produce the same energy or 20 nanojoules. The light source produces near-infrared light (see col. 6, line 51) and wherein the light source comprises a laser (see col. 6, lines 54-59). It is noted that TPE allows imaging living tissue within a certain of depth of tissue. TPE is a variation of the multiphoton fluorescence microscope and uses pulsed long wavelength laser to excite fluorophores within the tissue, thereby permitting in vivo imaging through the imaging apparatus described by Denk et al. Further, pulses of long wavelength retain a moderate average illumination intensity of long wavelength light throughout the remainder of the specimen outside the region of the focal point (col. 3, lines 17-22).

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Denk et al. also disclose a suitable detector such as a photomultiplier tube 54, but do not specifically disclose a processor coupled to a detector or a modulator associated with the light source. In the same field of endeavor, Kolobanov et al. teach of a modulator 10 associated with treatment laser 12 that is under full control and coupled to another control device such as a computer (col. 13, lines 35-68). It would have been obvious to one with ordinary skill in the art at the time the invention was made to incorporate the teaching of Kolobanov et al. in order to facilitate the analysis of signals detected by the detector.

In addition, Denk et al do not describe beam expanding apparatus for beam shaping. In the same field of endeavor, Dixon et al teach of a spectrally-resolved confocal optical microscope that incorporates confocal fluorescence and/or photoluminescence microscopy (i.e. multi-photon excitation) including a beam-expanding telescope (col. 5, lines 35-41). It would have been obvious to one with ordinary skill in the art at the time the invention was made to incorporate the teaching of Dixon et al in order to obtain the desired beam shape for a specific imaging technique.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Rozanski whose telephone number is 571-272-1648. The examiner can normally be reached on Monday - Friday, 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eleni Mantis-Mercader can be reached on 571-272-4740. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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